IN THE CLAIMS

Please amend claims 1, 25, 49 and 69 and add new claims 70-96 so that the claims hereafter read as follows:

1. (Currently Amended) A system for amplifying optical signals comprising:

an optical fiber for carrying the optical signals;

a high power broadband light source comprising an optical component configured to generate amplified spontaneous emission (ASE) having a relatively short coherence length; and

a connector for introducing the high power broadband light source into the optical fiber as a Raman pump so as to induce Raman amplification of the optical signals within the fiber.

2. (Original) A system according to claim 1 wherein the optical signals comprise multiple channels in a dense wavelength-division multiplexing (DWDM) optical system.

3. (Original) A system according to claim 1 wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump.

4. (Original) A system according to claim 3 wherein the spectrally filtered high power broadband light source comprises a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component.

5. (Original) A system according to claim 4 wherein the optical component comprises a semiconductor source.

6. (Original) A system according to claim 5 wherein the optical component comprises a semiconductor optical amplifier.

7. (Original) A system according to claim 4 wherein the optical component comprises a fiber source.

8. (Original) A system according to claim 4 wherein the optical component comprises a planar waveguide.

9. (Original) A system according to claim 1 wherein the high power broadband light source is formed using at least two discrete high power broadband light sources combined so as to yield a composite high power broadband light source.

10. (Original) A system according to claim 1 wherein the high power broadband light source comprises two orthogonal linear polarizations.

11. (Original) A system according to claim 10 wherein the high power broadband light source comprises spectrally filtered amplified spontaneous emission (ASE) generated from an optical component so as to have a relatively short coherence length, and further wherein the two orthogonal linear polarizations are created using an optical fiber depolarizer.

12. (Original) A system according to claim 3 wherein the spectral filtering is achieved using a thin-film filter.

13. (Original) A system according to claim 3 wherein the spectral filtering is achieved using a Bragg grating.

14. (Original) A system according to claim 4 wherein said optical component comprises a semiconductor waveguide comprising at least one active region for generating ASE.

15. (Original) A system according to claim 4 wherein the optical component comprises at least one wavelength seed section for generating ASE and at least one power booster section for amplifying the ASE.

16. (Original) A system according to claim 4 wherein the optical component comprises a plurality of ASE sources having their outputs combined together so as to form a composite ASE source.

17. (Original) A system according to claim 16 wherein the optical component comprises an optical waveguide comprising a wavelength seed section for generating ASE and a power booster section for amplifying the ASE.

18. (Original) A system according to claim 17 wherein the wavelength seed section comprises a plurality of separate wavelength seed subsections arranged in a serial configuration, and further wherein each of the wavelength seed subsections is arranged to produce ASE in a particular wavelength range.

19. (Original) A system according to claim 18 wherein the wavelength seed section is disposed between the power booster section and a high reflectance mirror, and further wherein the

high reflectance mirror is configured to provide the desired ASE spectrum at the input to the power booster section.

20. (Original) A system according to claim 19 wherein the high reflectance mirror comprises at least one element selected from the group consisting of a thin film coating and a distributed Bragg reflector.

21. (Original) A system according to claim 14 wherein the optical component comprises a plurality of optical waveguides each comprising a wavelength seed section for generating ASE, a filter for tailoring the ASE to a particular wavelength range, and a multiplexer for combining the outputs of the plurality of optical ASE waveguides.

22. (Original) A system according to claim 21 wherein the filter comprises a high reflectance mirror.

23. (Original) A system according to claim 21 wherein the system further comprises a power booster section at the output of the multiplexer.

24. (Original) A system according to claim 4 wherein the optical component comprises a fiber amplifier.

25. (Currently Amended) A method for amplifying optical signals comprising:

introducing a high power broadband light source into an optical fiber carrying the optical signals so that the high power

broadband light source acts as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source comprises an optical component configured to generate amplified spontaneous emission (ASE) having a relatively short coherence length.

26. (Original) A method according to claim 25 wherein the optical signals comprise multiple channels in a dense wavelength-division multiplexing (DWDM) system.

27. (Original) A method according to claim 25 wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump.

28. (Original) A method according to claim 27 wherein the spectrally filtered high power broadband light source comprises a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component.

29. (Original) A method according to claim 28 wherein the optical component comprises a semiconductor source.

30. (Original) A method according to claim 29 wherein the optical component comprises a semiconductor optical amplifier.

31. (Original) A method according to claim 28 wherein the optical component comprises a fiber source.

32. (Original) A method according to claim 28 wherein the optical component comprises a planar waveguide.

33. (Original) A method according to claim 25 wherein the high power broadband light source is formed using at least two discrete high power broadband light sources combined so as to yield a composite high power broadband source.

34. (Original) A method according to claim 25 wherein the high power broadband light source comprises two orthogonal linear polarizations.

35. (Original) A method according to claim 34 wherein the high power broadband light source comprises spectrally filtered amplified spontaneous emission (ASE) generated from an optical component so as to have a relatively short coherence length, and further wherein the two orthogonal linear polarizations are created using an optical fiber depolarizer.

36. (Original) A method according to claim 27 wherein the spectral filtering is achieved using a thin-film filter.

37. (Original) A method according to claim 27 wherein the spectral filtering is achieved using a Bragg grating.

38. (Original) A method according to claim 28 wherein said optical component comprises a semiconductor waveguide comprising at least one active region for generating ASE.

39. (Original) A method according to claim 28 wherein the optical component comprises at least one wavelength seed section

for generating ASE and at least one power booster section for amplifying the ASE.

40. (Original) A method according to claim 28 wherein the optical component comprises a plurality of ASE sources having their outputs combined together so as to form a composite ASE source.

41. (Original) A method according to claim 37 wherein the optical component comprises an optical waveguide comprising a wavelength seed section for generating ASE and a power booster section for amplifying the ASE.

42. (Original) A method according to claim 41 wherein the wavelength seed section comprises a plurality of separate wavelength seed subsections arranged in a serial configuration, and further wherein each of the wavelength seed subsections is arranged to produce ASE in a particular wavelength range.

43. (Original) A method according to claim 42 wherein the wavelength seed section is disposed between the power booster section and a high reflectance mirror, and further wherein the high reflectance mirror is configured to provide the desired ASE spectrum at the input to the power booster section.

44. (Original) A method according to claim 43 wherein the high reflectance mirror comprises at least one element selected from the group consisting of a thin film coating and a distributed Bragg reflector.

45. (Original) A method according to claim 37 wherein the optical component comprises a plurality of optical waveguides each comprising a wavelength seed section for generating ASE, a filter for tailoring the ASE to a particular wavelength range, and a multiplexer for combining the outputs of the plurality of optical ASE waveguides.

46. (Original) A method according to claim 45 wherein the filter comprises a high reflectance mirror.

47. (Original) A method according to claim 45 wherein the system further comprises a power booster section at the output of the multiplexer.

48. (Original) A method according to claim 28 wherein the optical component comprises a fiber amplifier.

49. (Currently Amended) A spectrally filtered high power broadband light source comprising an optical component configured to generate ~~a~~ spectrally filtered amplified spontaneous emission (ASE) ~~generated from an optical component~~ having a relatively short coherence length.

50. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the optical component comprises a semiconductor source.

51. (Original) A spectrally filtered high power broadband light source according to claim 50 wherein the optical component comprises a semiconductor optical amplifier.

52. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the optical component comprises a fiber source.

53. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the optical component comprises a planar waveguide.

54. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the high power broadband light source is formed using at least two discrete high power broadband light sources combined so as to yield a composite high power broadband light source.

55. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the high power broadband light source comprises two orthogonal linear polarizations.

56. (Original) A spectrally filtered high power broadband light source according to claim 55 wherein the high power broadband light source comprises spectrally filtered amplified spontaneous emission (ASE) generated from an optical component so as to have a relatively short coherence length, and further wherein the two orthogonal linear polarizations are created using an optical fiber depolarizer.

57. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the spectral filtering is achieved using a thin-film filter.

58. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the spectral filtering is achieved using a Bragg grating.

59. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein said optical component comprises a semiconductor waveguide comprising at least one active region for generating ASE.

60. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the optical component comprises at least one wavelength seed section for generating ASE and at least one power booster section for amplifying the ASE.

61. (Original) A spectrally filtered high power broadband light source according to claim 49 wherein the optical component comprises a plurality of ASE sources having their outputs combined together so as to form a composite ASE source.

62. (Original) A spectrally filtered high power broadband light source according to claim 61 wherein the optical component comprises an optical waveguide comprising a wavelength seed section for generating ASE and a power booster section for amplifying the ASE.

63. (Original) A spectrally filtered high power broadband light source according to claim 62 wherein the wavelength seed section comprises a plurality of separate wavelength seed subsections arranged in a serial configuration, and further wherein each of the wavelength seed subsections is arranged to produce ASE in a particular wavelength range.

64. (Original) A spectrally filtered high power broadband light source according to claim 63 wherein the wavelength seed section is disposed between the power booster section and a high reflectance mirror, and further wherein the high reflectance mirror is configured to provide the desired ASE spectrum at the input to the power booster section.

65. (Original) A spectrally filtered high power broadband light source according to claim 64 wherein the high reflectance mirror comprises at least one element selected from the group consisting of a thin film coating and a distributed Bragg reflector.

66. (Original) A spectrally filtered high power broadband light source according to claim 59 wherein the optical component comprises a plurality of optical waveguides each comprising a wavelength seed section for generating ASE, a filter for tailoring the ASE to a particular wavelength range, and a multiplexer for combining the outputs of the plurality of optical ASE waveguides.

67. (Original) A spectrally filtered high power broadband light source according to claim 66 wherein the filter comprises a high reflectance mirror.

68. (Original) A spectrally filtered high power broadband light source according to claim 66 wherein the system further comprises a power booster section at the output of the multiplexer.

69. (Currently Amended) A spectrally filtered high power broadband light source according to claim ~~4~~ 49 wherein the optical component comprises a fiber amplifier.

70. (New) A system for amplifying optical signals comprising:

an optical fiber for carrying the optical signals;

a high power broadband light source; and

a connector for introducing the high power broadband light source into the optical fiber as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source comprises two orthogonal linear polarizations,

and wherein the high power broadband light source comprises spectrally filtered amplified spontaneous emission (ASE) generated from an optical component so as to have a relatively short coherence length, and further wherein the two orthogonal linear polarizations are created using an optical fiber depolarizer.

71. (New) A system for amplifying optical signals comprising:

an optical fiber for carrying the optical signals;

a high power broadband light source; and

a connector for introducing the high power broadband light source into the optical fiber as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump,

wherein the spectrally filtered high power broadband light source comprises a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

and wherein the optical component comprises at least one wavelength seed section for generating ASE and at least one power booster section for amplifying the ASE.

72. (New) A system for amplifying optical signals comprising:

an optical fiber for carrying the optical signals;

a high power broadband light source; and

a connector for introducing the high power broadband light source into the optical fiber as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump,

wherein the spectrally filtered high power broadband light source comprises a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

wherein the optical component comprises a plurality of ASE sources having their outputs combined together so as to form a composite ASE source,

and wherein the optical component comprises an optical waveguide comprising a wavelength seed section for generating ASE and a power booster section for amplifying the ASE.

73. (New) A system according to claim 72 wherein the wavelength seed section comprises a plurality of separate wavelength seed subsections arranged in a serial configuration, and further wherein each of the wavelength seed subsections is arranged to produce ASE in a particular wavelength range.

74. (New) A system according to claim 73 wherein the wavelength seed section is disposed between the power booster section and a high reflectance mirror, and further wherein the high reflectance mirror is configured to provide the desired ASE spectrum at the input to the power booster section.

75. (New) A system according to claim 74 wherein the high reflectance mirror comprises at least one element selected from the group consisting of a thin film coating and a distributed Bragg reflector.

76. (New) A system for amplifying optical signals comprising:

an optical fiber for carrying the optical signals;

a high power broadband light source; and

a connector for introducing the high power broadband light source into the optical fiber as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump,

wherein the spectrally filtered high power broadband light source comprises a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

wherein said optical component comprises a semiconductor waveguide comprising at least one active region for generating ASE,

and wherein the optical component comprises a plurality of optical waveguides each comprising a wavelength seed section for generating ASE, a filter for tailoring the ASE to a particular wavelength range, and a multiplexer for combining the outputs of the plurality of optical ASE waveguides.

77. (New) A system according to claim 76 wherein the filter comprises a high reflectance mirror.

78. (New) A system according to claim 76 wherein the system further comprises a power booster section at the output of the multiplexer.

79. (New) A method for amplifying optical signals comprising:

introducing a high power broadband light source into an optical fiber carrying the optical signals so that the high power

broadband light source acts as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source comprises two orthogonal linear polarizations,

and wherein the high power broadband light source comprises spectrally filtered amplified spontaneous emission (ASE) generated from an optical component so as to have a relatively short coherence length, and further wherein the two orthogonal linear polarizations are created using an optical fiber depolarizer.

80. (New) A method for amplifying optical signals comprising:

introducing a high power broadband light source into an optical fiber carrying the optical signals so that the high power broadband light source acts as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump,

wherein the spectrally filtered high power broadband light source comprises a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

and wherein the optical component comprises at least one wavelength seed section for generating ASE and at least one power booster section for amplifying the ASE.

81. (New) A method for amplifying optical signals comprising:

introducing a high power broadband light source into an optical fiber carrying the optical signals so that the high power broadband light source acts as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump,

wherein the spectral filtering is achieved using a Bragg grating,

and wherein the optical component comprises an optical waveguide comprising a wavelength seed section for generating ASE and a power booster section for amplifying the ASE.

82. (New) A method according to claim 81 wherein the wavelength seed section comprises a plurality of separate wavelength seed subsections arranged in a serial configuration, and further wherein each of the wavelength seed subsections is arranged to produce ASE in a particular wavelength range.

83. (New) A method according to claim 82 wherein the wavelength seed section is disposed between the power booster section and a high reflectance mirror, and further wherein the high reflectance mirror is configured to provide the desired ASE spectrum at the input to the power booster section.

84. (New) A method according to claim 83 wherein the high reflectance mirror comprises at least one element selected from the group consisting of a thin film coating and a distributed Bragg reflector.

85. (New) A method for amplifying optical signals comprising:

introducing a high power broadband light source into an optical fiber carrying the optical signals so that the high power broadband light source acts as a Raman pump so as to induce Raman amplification of the optical signals within the fiber,

wherein the high power broadband light source is spectrally filtered so as to provide a desired spectral distribution for the Raman pump,

wherein the spectral filtering is achieved using a Bragg grating,

and wherein the optical component comprises a plurality of optical waveguides each comprising a wavelength seed section for generating ASE, a filter for tailoring the ASE to a particular wavelength range, and a multiplexer for combining the outputs of the plurality of optical ASE waveguides.

86. (New) A method according to claim 85 wherein the filter comprises a high reflectance mirror.

87. (New) A method according to claim 85 wherein the system further comprises a power booster section at the output of the multiplexer.

88. (New) A spectrally filtered high power broadband light source comprising a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

wherein the high power broadband light source comprises two orthogonal linear polarizations,

and wherein the high power broadband light source comprises spectrally filtered amplified spontaneous emission (ASE) generated from an optical component so as to have a relatively short coherence length, and further wherein the two orthogonal linear polarizations are created using an optical fiber depolarizer.

89. (New) A spectrally filtered high power broadband light source comprising a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

wherein the optical component comprises at least one wavelength seed section for generating ASE and at least one power booster section for amplifying the ASE.

90. (New) A spectrally filtered high power broadband light source comprising a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

wherein the optical component comprises a plurality of ASE sources having their outputs combined together so as to form a composite ASE source,

and wherein the optical component comprises an optical waveguide comprising a wavelength seed section for generating ASE and a power booster section for amplifying the ASE.

91. (New) A spectrally filtered high power broadband light source according to claim 90 wherein the wavelength seed section comprises a plurality of separate wavelength seed subsections arranged in a serial configuration, and further wherein each of the wavelength seed subsections is arranged to produce ASE in a particular wavelength range.

92. (New) A spectrally filtered high power broadband light source according to claim 91 wherein the wavelength seed section is disposed between the power booster section and a high reflectance mirror, and further wherein the high reflectance mirror is configured to provide the desired ASE spectrum at the input to the power booster section.

93. (New) A spectrally filtered high power broadband light source according to claim 92 wherein the high reflectance mirror comprises at least one element selected from the group consisting of a thin film coating and a distributed Bragg reflector.

94. (New) A spectrally filtered high power broadband light source comprising a spectrally filtered amplified spontaneous emission (ASE) generated from an optical component,

wherein said optical component comprises a semiconductor waveguide comprising at least one active region for generating ASE,

and wherein the optical component comprises a plurality of optical waveguides each comprising a wavelength seed section for generating ASE, a filter for tailoring the ASE to a particular wavelength range, and a multiplexer for combining the outputs of the plurality of optical ASE waveguides.

95. (New) A spectrally filtered high power broadband light source according to claim 94 wherein the filter comprises a high reflectance mirror.

96. (New) A spectrally filtered high power broadband light source according to claim 94 wherein the system further comprises a power booster section at the output of the multiplexer.